REMARKS

This Amendment is in response to the Office Action mailed October 23, 2007. The Examiner's comments in the Office Action have been carefully considered.

The title as well as some informalities in the specification have been objected to for reasons set forth in paragraphs 1 and 2 of the Office Action. The title and the specification have been amended to address and overcome the Examiner's objections.

Additionally, claims 1-7 have been objected because of certain minor informalities mentioned in paragraph 3 of the Office Action. The claims have been reviewed and the Examiner's objections have been addressed. Claim 1 has been amended to comply with the Examiner's request as well as to make corrections to any additional informalities that have come to the applicant's attention. It is respectfully submitted that the objections made to claims 1-7 have been overcome and it is, therefore, respectfully requested that the objections to the claims be withdrawn.

Claims 1-3 and 7 have been rejected as being fully anticipated by U.S. Patent No. 7,136,418 to Atlas et al., for reasons set forth in paragraph 5 of the Office Action. Claims 4-6, however, have been rejected as being obvious and, therefore, unpatentable on the basis of Atlas et al. in view of or when combined with the teachings in U.S. Patent No. 5,886,276 to Levine et al., for reasons set forth in paragraph 7 of the Office Action.

In view of the amendments made herein and the comments that follow the Examiner's rejections of the claims are respectfully traversed.

Considering amended claim 1, the only independent claim of record, the method of transmitting audio signals between the transmitter and at least one receiver in accordance with the invention comprises of the follows steps:

An audio signal is resolved into a number of spectral components. The spectral components of the resolved audio signal are then stored in a two-dimensional array in which the spectral components are especially arranged in accordance with the frequencies and amplitudes of the spectral components as well as along a time axis. The spectral components are then formed into a plurality of groups from each individual field or parameter each of the individual groups are then assigned a priority. The specific priority assigned to one group over another group may be a function of relative amplitudes of the spectral components, amplitude differences and/or the time frame in which the spectral components are created. Once priorities have been assigned to the various groups they are transmitted to a receiver in a sequence corresponding to there priorities. Thus, the method of the invention works as follows: first, an audio signal is recorded, converted into electrical signals (sampling) and transformed in its spectral components (frequency transformation). This can be either done through FFT (Fast Fourier Transform), or by a number of single-frequency-selective filters. After this step it is obtained for each sample at any time the frequency and the amplitude value at this frequency.

The amplitude values are temporarily stored in fields of a 2-dimensional array. The first dimension of the array corresponds to the time axis (for example milliseconds) and the second dimension corresponds to the frequency (Hz). Thus, each sample is determined by its relative amplitude and phase can be stored in the corresponding field of the array as an imaginary number. Thus, the audio signal is characterized by three (3) parameters in the array: the time e.g. in milliseconds (ms), perceived as duration, the frequency in hertz (Hz), perceived as a pitch, and the energy (or intensity) of the signal, perceived as volume or intensity, which is stored as a numerical value in the field of the array. Submitted herewith is a 3-dimensional drawing that represents the method of claim 1. The drawing shows a 3-dimensional frequency-time diagram

of a transformed audio signal, where the 3-axis or vertical axis represents the amplitudes of the spectral components, with the fields and two groups shown.

Similar to the procedure of prioritizing groups of pixels in the image/video encoding groups are formed from neighboring array values and these groups are then prioritized. Each field of the array forms together with at least one neighboring field, but preferably several neighboring fields as a group. The groups are determined by a position value, defined by time and frequency, an amplitude value at this position, and the amplitude values of the neighboring fields of the group. The kind of grouping is predetermined. In the drawings there are indicated two groups (Group 1 and Group 2). Each group consists of nine (9) adjacent fields of the array.

According to the method of the present application, each group is assigned a priority. There are different ways of assigning priorities.

Those groups can be assigned higher priorities the closer to the present time. If the present time is for example 470 ms on the time axis of the diagram, Group 1 would get a higher priority than Group 2 because Group 1 is closer to the actual time.

Alternatively (or additionally), those groups can be assigned higher priority for amplitude values compared to the other groups that are very large. For example, the amplitude values of Group 2 are greater than of Group 1, so in that case Group 2 gets a higher priority than Group 1.

Alternatively (or additionally), those groups can be assigned a higher priority which amplitude values within the group that strongly differ. As in the example drawing the amplitude values within the Group 2 differ stronger than the amplitude values within the Group 1. Thus, Group 2 will receive a greater priority than Group 1.

In a next step, the groups are sorted in descending order of priority and stored in this order, or transmitted to a recipient.

According to the above-described methods of prioritization (amplitude, position in time or amplitude differences of neighboring values), the values of the various groups are received by recipient.

At the recipient the group values are stored in a corresponding array, so that the frequency-time diagram at the recipient, in the best case, looks exactly like the diagram at the sender. The more groups that are received, the more accurate is the reconstruction of the original signal. The groups that have not been transmitted can be reconstructed from the groups already transmitted by using known interpolation methods. From the generated array it is then generated an audio signal which will then be converted to sound.

Turning to the primary reference to Atlas et al., this patent discloses a scalable and perceptually ranked signal coding and decoding system. An input signal is encoded and decoded in relation to the most perceptually relevant aspects of the input signal. More specifically, a two-dimensional transform is applied to the input signal to produce a magnitude matrix and a phase matrix that can be inversely quantized by a decoder. However, Atlas et al. does not fully anticipate the method in accordance with the present invention, as now defined in amended claim 1. Thus, Atlas et al. fails to teach the following:

1. The formation of groups from each individual data field and at least two (2) fields of the array adjacent to this field. The Examiner has directed the applicant's attention to Atlas et al., et col. 10, lns. 13-25 for the teaching of "forming of groups from each individual field and at least two fields of the array adjacent to this field", the Examiner indicating that the two-dimensional transform is applied to an audio signal as two auditory notes of a glockenspiel musical instrument; a first note starts at time zero and a second note begins approximately 60 ms later. Thus, the Examiner concludes that the transformed audio signal is applied at least to a

series of notes, which are "groups" even though only two (2) notes are expressly disclosed. However, Atlas et al. describes the recording and spectral transformations of several tones of the musical instrument the transform is applied to a group of notes (audio signal to be transformed) rather than a group of fields of the array resulting after the transform. Referring to the attached drawing, it should be clear that the groups are selected from the spectral components after the audio signal has been resolved.

2. Assigning a priority to the individual group. The priority of one group may becoming greater the greater the amplitudes of the group values, and/or the greater amplitude differences of the values of a group, and/or the closer the group is to the current time. Atlas et al., instead, assigns priorities to the transformed values depending on the mean spectral density. Atlas et al. fails to teach assigning of priorities based upon the above criteria. In view of the foregoing, it is respectfully submitted that Atlas et al. fails to anticipate the claimed invention as defined in amended claim 1 under 35 U.S.C. § 102.

The Federal Circuit decisions have repeatedly emphasized that anticipation or lack of novelty is only established if all of the elements of an invention, as stated in a patent claim are identically set forth in a single prior art reference. *Gechter v. Davidson, 116 F3d 1454, 1457, 43 USBQ 2d 1030, 1032 (Fed. Cir. 1997).*

It is respectfully requested, therefore, that the Examiner reconsider and withdraw the rejection of claim 1 on the basis of Atlas et al.

The remaining claims all depend, directly or indirectly, on presumably allowable claim 1 and should be allowed with the allowance thereof.

This application is believed to be in condition for allowance. Early allowance and issuance is, accordingly, respectfully solicited.

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Respectfully submitted,

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